



CGCTCAGGATACGACITCGCGCTAGGATCGGATCCCCGGGCGATTATATAGCTCGATCGATC1
 TTCTCTATACCGCGCTGGGATATACACACACACCGCGCGGATAGCATGACTGATCTA
 CCCCACCT
 CACAGACTCTACGCT

Nucleotide

PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search <u>Nucleotide</u> for		Limits		Preview/Index		History		Clipboard
Go		Clear						
Display <u>default</u>		Show: <u>20</u>		Send to <u>File</u>		Get Subsequence		

☐ 1: AF106938. Porcine adenoviru...[gi:6539643]

Links

LOCUS AF106938 502 bp DNA linear VRL 20-JAN-2000
 DEFINITION Porcine adenovirus 3 major late promoter and tri-partite leader sequence.
 ACCESSION AF106938
 VERSION AF106938.1 GI:6539643
 KEYWORDS
 SOURCE Porcine adenovirus 3
 ORGANISM Porcine adenovirus 3
 Viruses; dsDNA viruses, no RNA stage; Adenoviridae; Mastadenovirus.
 REFERENCE 1 (bases 1 to 502)
 AUTHORS Hammond,J.M., McCoy,R.J., Jansen,E.S., Morrissy,C.J., Hodgson,A.L. and Johnson,M.A.
 TITLE Vaccination with a single dose of a recombinant porcine adenovirus expressing the classical swine fever virus gp55 (E2) gene protects pigs against classical swine fever
 JOURNAL Vaccine 18 (11-12), 1040-1050 (2000)
 MEDLINE 20059984
 PUBMED 10590324
 REFERENCE 2 (bases 1 to 502)
 AUTHORS Hammond,J.M., McCoy,R.J., Jansen,E.S., Morrissy,C.J., Hodgson,A.L.M. and Johnson,M.A.
 TITLE Direct Submission
 JOURNAL Submitted (16-NOV-1998) Vaccines and Therapeutics Program, CSIRO, Division of Animal Health, Australian Animal Health Laboratory, Portalington Road, Geelong, Victoria 3220, Australia
 FEATURES
 source Location/Qualifiers
 1..502
 /organism="Porcine adenovirus 3"
 /mol_type="genomic DNA"
 /serotype="3"
 /db_xref="taxon:35265"
 misc feature
 1..502
 /note="contains major late promoter and tri-partite leader sequence"
 BASE COUNT 76 a 143 c 187 g 96 t
 ORIGIN
 1 ggtgccgagg tgcgtcggcgt agaggatgag ggcccagtcg gagatgaagg cacgcgcccc
 61 ggcgaggacg aagctggcga cctgcgaggg gtacgcgtcg ttgggcacta atggcgaggg
 121 ctgctcgagc gtgtggagac agaggtcctc gtcgtccgcg tccaggaagt ggattggtcg
 181 ccagtggtag tccacgtgac cggcttgccg gtcgaggggt ataaaaggcg cgggccgggg
 241 tgcgtggccg tcagttgctt cgaggcctc gtcaccggag tccgcgtctc cggcgtctcg
 301 cgctgcggct gcatctgtgg tcccgagtc ttcaggctct tgttgaggag gtactcctga
 361 tcgctgtccc agtacttggc gtgtgggaag ccgtcctgat cgcgatcctc ctgctgttgc
 421 agcgcttcgg caaacacgcg cacctgctct teggaecggg cgaagcggtc gacgaaggcg
 481 tctagccagc aacagtcgca ag

//

Disclaimer | Write to the Help Desk
 NCBI | NLM | NIH

Aug 13, 2003 13:17:11



Nucleotide

PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search <u>Nucleotide</u> <input type="button" value="v"/> for <input type="text"/> <input type="button" value="Go"/> <input type="button" value="Clear"/>								
Limits		Preview/Index		History		Clipboard		Details
Display	<u>default</u> <input type="button" value="v"/>	Show:	<u>20</u> <input type="button" value="v"/>	Send to	<u>File</u> <input type="button" value="v"/>	Get Subsequence		

1: AF083132. Porcine adenoviru...[gi:4092658]

Links

LOCUS	AF083132	34094 bp	DNA	linear	VRL 03-JAN-1999
DEFINITION	Porcine adenovirus 3 strain 6618, complete genome..				
ACCESSION	AF083132 L43077 U10433 L43363				
VERSION	AF083132.1 GI:4092658				
KEYWORDS	.				
SOURCE	Porcine adenovirus 3				
ORGANISM	<u>Porcine adenovirus 3</u> Viruses; dsDNA viruses, no RNA stage; Adenoviridae; Mastadenovirus.				
REFERENCE	1 (bases 1 to 34094)				
AUTHORS	Reddy,P.S., Nagy,E. and Derbyshire,J.B.				
TITLE	Sequence analysis of putative pVIII, E3 and fibre regions of porcine adenovirus type 3				
JOURNAL	Virus Res. 36 (1), 97-106 (1995)				
MEDLINE	<u>95351046</u>				
PUBMED	<u>7625129</u>				
REFERENCE	2 (bases 1 to 34094)				
AUTHORS	Reddy,P.S., Tuboly,T., Dennis,J.R., Derbyshire,J.B. and Nagy,E.				
TITLE	Comparison of the inverted terminal repetition sequences from five porcine adenovirus serotypes				
JOURNAL	Virology 212 (1), 237-239 (1995)				
MEDLINE	<u>95407103</u>				
PUBMED	<u>7676637</u>				
REFERENCE	3 (bases 1 to 34094)				
AUTHORS	Reddy,P.S., Idamakanti,N., Derbyshire,J.B. and Nagy,E.				
TITLE	Characterization of the early region 4 of porcine adenovirus type 3				
JOURNAL	Virus Genes 15 (1), 87-90 (1997)				
MEDLINE	<u>98014367</u>				
PUBMED	<u>9354276</u>				
REFERENCE	4 (bases 1 to 34094)				
AUTHORS	Reddy,P.S., Idamakanti,N., Song,J.Y., Lee,J.B., Hyun,B.H., Park,J.H., Cha,S.H., Bae,Y.T., Tikoo,S.K. and Babiuk,L.A.				
TITLE	Nucleotide sequence and transcription map of porcine adenovirus type 3				
JOURNAL	Virology 251 (2), 414-426 (1998)				
MEDLINE	<u>99058191</u>				
PUBMED	<u>9837805</u>				
REFERENCE	5 (bases 1 to 34094)				
AUTHORS	Reddy,P.S.				
TITLE	Sequence and transcription map analysis of early region-1 of porcine adenovirus type 3				
JOURNAL	Virus Res. (1999) In press				
REFERENCE	6 (bases 1 to 34094)				
AUTHORS	Reddy,P.S.				
TITLE	Direct Submission				
JOURNAL	Submitted (07-AUG-1998) Veterinary Microbiology, Veterinary Infectious Disease Organization, 120 Veterinary Road, Saskatoon, Saskatchewan S7N 5E3, Canada				
COMMENT	On or before Jan 4, 1999 this sequence version replaced gi: <u>1146142</u> , gi: <u>606653</u> , gi: <u>1146151</u> .				
FEATURES	Location/Qualifiers				
source	1..34094				
	/organism="Porcine adenovirus 3"				

PAV-3

/mol_type="genomic DNA"
/strain="6618"
/specific_host="Sus scrofa"
/db_xref="taxon:35265"
repeat region 1..144
/note="inverted terminal repetition"
/rpt_type=inverted
gene 13662..15116
/gene="L1"
CDS 13662..15116
/gene="L1"
/codon_start=1
/product="penton base protein"
/protein_id="AAC99444.1"
/db_xref="GI:4092662"
/translation="MRRMMPAAPPQGASPPPSYESVVGSSLTEPLYVPPRYLGPTEGR
NSIRYSQLPPLYDTTKIYLIDNKSADIASLNYQNNHSDFLTSSVQNSDFTPMEASTQT
INLDERSRWGGGEFKSILTTNIPNVTQYMFNSFRVRLMSARDKETNAPTYEFTLTLP
EGNFSIDIAVIDLMNNAIVENYLAVGRQQGVKEEDIGVKIDTRNFRGLGYDPETKLVMPG
SYTNMAFHPDVLAPGCAIDFTFSRLNNLLGIRKRYPYQEGFMLTYEDLAGGNI PALL
DLTTYDQENSSTIKPLKQDSKGRSYHVGEDPEAGDTFTYYRSWYLAYNYGDPATGTAS
QTLVSPDVTCGVEQVYWSLPDLMQDPVTFRPSQTPSNYPVVATELLPLRSRAFYNTQ
AVYSQLLQQATNNTLVFNRFENQILLRPPESTITISENVPSLTDHGTLPLRNSIPG
VQRVTVDARRRVCPYVYKSLGVVTPRVLSSRTF"
CDS 19097..21916
/note="major structural protein"
/codon_start=1
/product="hexon"
/protein_id="AAC99441.1"
/db_xref="GI:4092659"
/translation="MATPSMMPQWSYMHISGQDASEYLSPLGVQFSQATETYFNLNK
FRNPTVAPTHDVTTERSQRLQLRFVPVDKEDTQYTYKTRFQLAVGDNRVLDMASTFFD
IRGTLDRGPSFKPYSGTAYNIMAPKSAPNNCQYLDPKGETEAGKVNTIAQASFVGPID
ETTGDIKITEEDEETTIDPLYEPQPQLGPSSWSDNIPSATSGAGRVLKQTTTPROPCY
GSYASPTNIHGGQTKDDKVTPLYFTNNPATEAEALEENGLKPNVTLYSEDVDLKAPDT
HLVYAVNQTEFAQYGLGQQAAPNRANYIGFRDNFIGNLYNSNGNQGMLAGQASQLN
AVVDLQDRNHRYSYQLFLDSLYDRSRYFSLWNQAIDSYDKDVRVLENNGVEDEMPNFC
FPIGAIEETNMTFTQLKXSENGGSRATTWTKEGDDGGNGAEHYLGIGNLNAMEINLTA
NLWRSFLYSNVALYLPDKYKFSPPNVPIDPNTHSYDYINKRLPLNNLIDTFVNIGARW
SPDVMDNVNPFNHRNYGLRYSQLLGNRGYCKFHIQVPQKFFALKSLLLPGATYTY
EWSFRKDVNMILQSTLGNLDRADGAKINIESVNLYASFFPMAHNTASTLEAMLRNDTN
NQTFIDFLSSANMLYPIPANVTNLPISIPSRNWAAFRGWSFTRLKHNETPALGSPFDP
YFTYSGSIPYLDGTFYLGHTFRRISIQFDSSVAWPGNDRLLTPNEFEVKRTVDGEGYT
VAQTNMTKDWFLVQMLAHYNYGYHLPGEYRDRYTSFLRNFEPMCRQVPDYANHKD
EYLEVPTTNQFNSSGFVSAAFATAGMREGHPYPANWPYPLIGEDAVQTVTQRKFLCDRT
LWRIPFSSNFMSMGLTLDLGQNLLYANSALHDMTFEVDAMDEPTLLYVLFVDFVDCG
VHQPHRGVIEAVYLRTPFSSAGNATT"
CDS 21934..22548
/note="23K protein"
/codon_start=1
/product="proteinase"
/protein_id="AAC99442.1"
/db_xref="GI:4092660"
/translation="MGSTEDELAMARDLQLPRFLGTFDKSFPGFLQESQRCCAIVNT
AARHTGGRHWLAVAWEPASRTFYFFDPFGFSDRELAQVYDFEYQRLLRKSAIQSTPDR
CLTLVKSTQSVQGPHTSAACGLFCLLFLAAAFARYPDSPMAYNPVMDLVEGVNLERLFDA
DVQPIFRANQEACYAFLARHSAYFRAHRHAIMEQTHLHKALDMQ"
CDS 24056..26572
/codon_start=1
/product="100K protein"
/protein_id="AAC99445.1"
/db_xref="GI:4092663"
/translation="MEDQHSAASELGSSAAPTLPPLPPPPPPPPPTSPPPSLQRRQEQPT
ETDDAEDTCSSSSSSSSASSECFVSPLEDTSSEDSADTVLPSEPRRDEEEQEEDSPDRY
MDADVLQRHLLRQSTILRQVLQEAAPGAAAEAAEAPSVAELEAALFSPATPPRR

QENGTCAPDPRLNFYPVFMFLPEALATYLLFFHNQKIPVSCRANRPRADAHWRLPSGTP
LPDYPTTDEVYKIFEGLGDEEPACANQDLKERDSVLVELKLDNPRLAVVKQCIATHF
AYPALALPPKVMSTLMQTLVRRASPLPDEGETPLEDLLVVSDEQLARWMHTSDPKVL
EERRKTVTAACMVTQVLHCMHTFLTREMVRRLGECLHYMFRQGYVKLASKIANMELS
NLVSYLGMHLHENRLGQHVHLHHTLKHEARRDYVRDTIYLYLVYTWTAMGVWQQCLEDR
NLRALETSLARARQSLWTGFDERTIAQDLAAFLFPTKLVELTQRSPLDFASQSMMHAF
RSFVLERSGILPAVCNALPSDFVPTVYRECPLPLWAHCYLLRLANFLMYHCDLAEDTS
GEGLFECYCRCLCAPHRCLATNTALLNEVQAINTELFELQRPKPDGTLPPPFKLTPGL
WTSAFLRHFVSEDIYHSDRILFYEDVSRPPRVEPSACVITHSAILAQLHDIKKAREEFL
LTKGHGVYLDPHTGEELNTAAPSTAHHAAPPEEAHPQQHQHQQQPSHRRRHHRRSSYAD
RVRSELHAYGGATGSSRDPVSGGCSARGTHSRDAARRRGSQQQRDQRLRRQFAQYPRG
TGGGGGTGHTDEAIQALLHQQQQQQEHQPAQELRRPQRGS"

CDS
27089..27760
/codon_start=1
/product="hexon associated protein precursor"
/protein_id="AAC99446.1"
/db_xref="GI:4092664"
/translation="MSKQIPTPYMWSYQPQSGRAAGASVDYSTRMNWLSAGPSMIGQV
NDIRHTRNQILIRQALITETPRPVQNPPSWPASLLPQMTQPPTHLHLPRNEILEGRLT
DAGMQLACGGALAPRDLYALTLRGRGIQLNEDLPLSASTLRPDGIFQLGGGGRSSFNP
TDAYLTLQNSSSLPRSGGIGSEQFVREFVPTVYINPFSGPPGTYPDQFIANYNILTDS
VAGYD"

TATA signal
27444..27447

CDS
27753..28106
/codon_start=1
/product="putative 13.7 kDa E3 protein"
/protein_id="AAC99451.1"
/db_xref="GI:4092669"
/translation="MTDGPQGGQRLRELLDQHRRCQPNRCCFAREGIHPEYFCITREH
FEAECIPDSLQEGHGLRFSLPTRYSDRRHRDGDRTILTSYYCGPASFKVRCLCGHPAP
HPLLLDLLCELYNRS"

CDS
27976..28602
/note="putative 23 kDa E3 protein"
/codon_start=1
/product="23 kDa protein"
/protein_id="AAC99447.1"
/db_xref="GI:4092665"
/translation="METAPSSLRRTAALLLSKFAVSAAILLTLFFSTFCVSCTTARS
VSPYTSPRVQFLSDIEPDSYSGSGSGDDEDEYELATNTPNEDILGSIVINNQIGP
KTLALGYFYAAMQFVFFAIIIVLILYRRYVLATALIVQRQMWSSEAVLRKTF SATV
VVTTPKQVTPCNCSCRFEEMVFYTTSVFMPWWASSSCSPPSAWPTG"

CDS
28307..28693
/codon_start=1
/product="putative 13.1 kDa E3 protein"
/protein_id="AAC99448.1"
/db_xref="GI:4092666"
/translation="MPPCSLSSLPSSSSSSSSTAATCWPPSSCSARCGPPRPSCGK
PSRPPLWLLPQNKSPPATAPAAARRWCSTTPPPSSCPGGPHPPAHRHGPPGQLDSGSD
AQQEPRPAAATAPHLCGTLRRGPHLR"

CDS
28939..30285
/codon_start=1
/product="viral attachment protein"
/protein_id="AAC99449.1"
/db_xref="GI:4092667"
/translation="MGPKKQKRELPEDFDPVYPYDVPQLQINPPFVSGDGFNQSV DGV
LSLHIAPPLVFDNTRALTAFGGGLQLSGKQLVVATEGSGLTNTPDGKLVLVKVKSPIT
LTAEGISLSLGPGLSNSETGLSLQVTAPLQFQGNALTLPLAAGLQNTDGGMGV KLGSG
LTTDNSQAVTVQVGNGLQLNGEQLTVPATAPLVSGSAGISFNYSNDFVLDNDSL
SLRPAKISVTPPLQSTEDTISLNYSNDFSVDNGALTAPTFKPYTLWTGASPTANVILTN
TTTPNGTFFLCLTRVGGLVLGSLFALKSSIDLTSMTKKVNFIFDGAGRLQSDSTYKGRF
GFRSNDSVIEPTAAGLSPAWLMPSTFIYPRNTSGSSSLTSFVYINQTYVHVDIKVNTLS
TNGYSLEFNFQNMFSAPFSTSYGTFCYVPRRTTHRPRHGPFSLRERRHLFQLLQQ"

repeat region
30205..30929
/rpt_type=tandem

CDS
30590..30940

polyA site

CDS

TATA signal

TATA signal

repeat region

/codon_start=1

/product="12.8 kDa protein"

/protein_id="AAC99450.1"

/db_xref="GI:4092668"

/translation="MTKKVNFIFDGAGRLQSDSTYKGRFGFRSNDSVIEPTAAGLSPA
WLMPTSTFIYPRNTSGSSLTSTFVYINQTYVHVDIKVNTLSTNGYSLEFNFQNSFSAPF
STSYGTFCYVPQSA"

complement(31183..31189)

complement(31305..31796)

/note="ORF 8; similar to human adenovirus 34 kDa
polypeptide"

/codon_start=1

/product="19.8 kDa polypeptide"

/protein_id="AAC99443.1"

/db_xref="GI:4092661"

/translation="MRSLMREIIRGCEYNRIFWWFREAVNLPSVSRVMYVGSVMFRGA
HLMYIKIMYDCDLKLLRMFHWGEVIYCDGDYANYIVLVCRRCHELSEPVARRCAQRLR
HWLKLAAEAIGAQRGRKQQTFTGEWWSRQRDAEREEERQALQECMVLGRSVSYQQI
KYF"

complement(33398..33401)

complement(33768..33771)

33951..34094

/note="inverted terminal repetition"

/rpt_type=inverted

BASE COUNT6240 a 11070 c 10693 g 6091 t

ORIGIN

1	catcatcaat	aatataaccgc	acactttttat	tgcccctttt	gtggcgtggt	gattggcgga
61	gagggttggg	ggcggcgggc	ggtgattggt	ggagaggggt	gtgacgtagc	gtgggaacgt
121	gacgtcgcgt	gggaaaatga	cgtgtgatga	cgtcccgtgg	gaacgggtca	aagtccaagg
181	ggaaggggtg	gagccctggg	gcggtccctc	gcggggcggg	gccgagcggc	ggaaaattccc
241	gcacaggtgg	agagtaccgc	gggattttgt	gccctctgga	ccggaccttc	gccctccggt
301	gtggcacttc	cgcaccacac	gtccgcggcc	cggtattccc	cacctgacga	cggtgacacc
361	actcacctga	gcggggtgtc	cttcgcgctg	agaggtccgc	ggcggccgcc	cgagatgacg
421	tgtgtgggtg	tattttttcc	cctcagtgtg	tatagtccgc	gcagcgcccg	agagtacta
481	ctcttgagtc	cgaagggagt	agagttttct	ctcagcggaa	cagaccctcg	acatggcgaa
541	cagacttcac	ctggactggg	acggaaaccc	cgaggtggtg	ccggtgctgg	aatgggaccc
601	ggtggatctg	cgcgaccctc	ctccggggga	tgagggcttc	tgtgagccgt	gctgggagag
661	tctggtcgat	ggactgccgg	acgagtggct	ggacagtgtg	gacgaggtgg	agggtattgt
721	gactgagggg	ggtgagtcag	aggacagtgg	tgggagtgcc	gctggtgact	caggtggctc
781	tcagggggtc	tttgagatgg	acccccaga	agagggggac	agtaatgagg	aggatatcag
841	cgcggtggct	gcggaggtgc	tgtctgaact	ggctgatgtg	gtgtttgagg	acccacttgc
901	gccaccctct	ccgtttgtgt	tggactgccc	cgaggtacct	ggtgtgaact	gccgctcttg
961	tgattaccat	cgctttcact	ccaaggaccc	caatctgaag	tgcagtctgt	gctacatgag
1021	gatgcatgcc	tttgctgtct	atggtgagtg	tttttgaca	tttgtgggat	tatgtggaaa
1081	aaaaggaaaa	agtgcttgta	agaaatctca	tgtgctattt	cccatttttt	gtctttttag
1141	aagctgtttc	tccagcacct	cacaggtcgg	gttcccgggg	acttggagac	ctgccaggac
1201	gcaagaggaa	gtactgctat	gactcatgca	gcgaacaacc	tttggacctg	tctatgaagc
1261	gccccgcgca	ttaatcatta	acctcaataa	acagcatgtg	atgatgactg	attgtctgtg
1321	tctctgccta	tatataccct	tgtggtttgc	agggaaggga	tgtggtgact	gagctattcc
1381	tcagcatcat	catcgctctg	cttttttcta	ctgcaggcta	tttcttgcta	gctcgctgtc
1441	cctttttctt	ttctgtgggc	atggactatc	aacttctggc	caagcttact	aacgtgaact
1501	accttaggaa	ggtgatagta	caggggtctc	agaactgccc	ttggtggaaa	aagatttttt
1561	cggacaggtt	tatcaaggta	gtagcagagg	ccaggaggca	gtacgggcaa	gagttgattg
1621	agatttttgt	ggagggtgag	aggggctttg	gtcctgagtt	cctgcgggaa	gggggactgt
1681	acgaagaggc	cgttctgaaa	gagttggatt	tcagcacctt	gggacgcacc	gtagctagtg
1741	tggctctggt	ctgcttcatt	tttgagaagc	ttcagaagca	cagcgggtgg	actgacgagg
1801	gtattttaag	tcttctggtg	ccgcacctat	gttccctgct	ggaggcgcca	atgatggcgg
1861	agcaggtgcg	gcaggggctg	tgcatcatca	ggatgccgag	cgcggagcgg	gagatgctgt
1921	tgcccagtgg	gtcatccggc	agtggcagcg	gggcggggat	gcgggaccag	gtggtgccca
1981	agcgcccgcg	ggagcaggaa	gaggaggagg	aggacgagga	tgggatggaa	gcgagcgggc
2041	gcaggctcga	agggccggat	ctggtttaga	tcgccgccgg	cccgggggag	cgggtggaga
2101	ggggagcggg	gaggaggcgg	gggggtcttc	catggttagc	tatcagcagg	tgctttctga
2161	gtatctggag	agtcctctgg	agatgcatga	gcgctacagc	tttgagcaga	ttaggcccta
2221	tatgcttcag	ccgggggatg	atctggggga	gatgatagcc	cagcacgcca	agggtggagtt
2281	gcagccgggc	acggtgtacg	agctgaggcg	cccgatcacc	atccgcagca	tgtgttacat

```

2341 catcgggaac ggggccaaga tcaagattcg ggggaattac acggagtaca tcaacataga
2401 gccgcgtaac cacatgtgtt ccattgcggg catgtggtcg gtgactatca cggatgtggt
2461 ttttgatcgg gagctaccgg cccggggtgg tctgatttta gccaacacgc acttcatcct
2521 gcacggctgc aacttctctg gctttctggg ctcggttaata acggcgaacg cggggggggt
2581 ggtgcgggga tgctactttt tcgctgtcta caaggcgctg gaccaccggg ggcgggtgtg
2641 gctgacggtg aacgagaaca cgtttgaaaa gtgtgtgtac gcggtggtct ctgcggggcg
2701 ttgcaggatc aagtacaact cctcctgtgc cacttctgca ttcttgacac tgagctatac
2761 gggcaagata gtggggaaca gcatcatgag cccttacacg ttcagcgacg acccctacgt
2821 ggacctggtg tgctgccaga gcgggatggt gatgcccctg agcacggtgc acatcgctcc
2881 ctctgtctcg ctgccctacc ctgagttccg caagaatgtg ctctccgcga gcaccatgtt
2941 tgtgggcggc cgcctgggca gcttcagccc cagccgctgc tcctacagct acagctccct
3001 ggtggtggac gagcagtcct accggggtct gagtgtgacc tgctgcttcg atcagacctg
3061 tgagatgtac aagctgctgc agtgtacgga ggcggacgag atggagacgg atacctctca
3121 gcagtacgcc tgctgtgctg gggacaatca cccctggccg caggtgcggc agatgaaagt
3181 gacagacgcg ctgcgggccc cccggtccct ggtgagctgc aactgggggg agttcacgca
3241 tgacgatgac tgaggatgag tcaccccctc cctcctctct gcaggtagct ggcccgcgcc
3301 agtgggatgg gctttggatg ggggaggggt gttccctata aaagggggat gggggtggag
3361 gcatgcagcc ccacggggaa gcttgtgtgg aggatgtctt ccgagggtga gatccggacc
3421 tgcttcattt cagctcgtct tcccagctgg gccggcgtgc gtcaggaggt ggccgggacg
3481 aatgtgaacg gcggagtggg gggcgcccct gccagagcgg ggtgctggc ctactccgcg
3541 ttcgttcagc agcaacagca gcagccgggg acggcggcga cggggtctgt gttccgggcg
3601 gtgtttccat cggatgatct gagcgcggag gtgggcatga tgcggcaggc gctggcggag
3661 ctgcggcagc agctgcagga gctgcgggag gtggtggaga tacagctgcg ggcacgggcc
3721 tcggaggcgg ccgaggagga agaggaggag gagattgtgg tggacgagga ggtggcgccc
3781 ggcgctggag cgaacaccat ggaagaggag gaggatgaga tggctcctgac gatgactgtg
3841 gtgggggacc ctgagcctgc tggagtggaa gccacggcgc caccaccacc caccgggag
3901 agcgaccctg cgtgcctgc tactaccact acccgaagc ggctcagcta cggcgcgagc
3961 aagaggagcg gtccatgcgc ggaggacaac tgacgcggac tgtgggggga agaaggggga
4021 ggaggaaaaga agaccatgga gacgggtgtt tgtctttttc cagcccaact ttattgagaa
4081 taataataaaa gcttatggat gtttggaaacg ataatacgct gtccagcgtt ctctgtcttg
4141 cagggtcttg tgtatcttct cgaggcaccg gtagacctgg tgttgacgt tgaaatacat
4201 gggcctgact cctcggcggg ggtgcaggta aagccactgg agggctggg cgggggggca
4261 ggtgcagtag atgatccagt catagcgctt ctggttgcgg tgggtgttga aaatgtcctt
4321 gaggagcagg ctgatggcgg tgggcagacc cttggtgtag gcattgatga accggttgac
4381 ctgggcgggc tgcattgagg gggacatgat gtggtacttg gcctggatct tgaggttgga
4441 gatgttgccg ctctggtcgc ggcgggggtt catgttgtag aggacgacga ggacggcgta
4501 gccggtgcag cgggggaagc gggcggtgcag cttggagggg aaggcgtgga agaacttggc
4561 gacccctctg tgtccgccga ggtcctccat gcactcgtcg aggacgatgg cgatgggtcc
4621 gcgggcggcg gcgcgggcga agacgttgcg tgagtcagt acatcatagt tgtgctcctg
4681 catgaggtcc tggtagctca tgcggacaaa gtctggcatg aggggtggcg tctgggggat
4741 taggggtgtg tccggaccgc tgcggtagtt gccctcgtag atctgggtct cccagcgac
4801 tacctcctgc ggggggatca tgtccacctg cggggtgatg aagaaaacag tctccggcg
4861 gggggagagg agttgggagg agatgaggtt gcggagcagc tgggacttgc cggagccggt
4921 gggaccgtag atgacagcga tgactggctg gacctggtag ttgagggagc ggcaggtgcc
4981 agccgggggt aggaagggca tgcaggcgtt gagggtgtcg cgcaggttgc ggttctcttg
5041 gacgaggtcc tgcaggaggt gtcggcctcc cagggagagg aggtgggaga gggaggcgaa
5101 ggccttgagg ggcttgaggc cctcggcgta gggcatgtcc tgcagggcct ggtggagcac
5161 gcgcagtcgc tcccagagct cggttacatg tcccacggta tcgtcctcca gcaggtctgg
5221 ttgtttctcg ggttggggtt gctgcgtgag tacggaacga ggcggtgggc gtcgagcggg
5281 tggagggtcc ggtccttcca gggccggagg gcccgctga ggggtggtctc ggtgacggtg
5341 aaggggcgcg tctggggctg ctcggtggcc agggctctct tgaggctgag gcggctggtg
5401 ctgaagggtg cgcttccgag ctgcgcgtcg ttcaggtagc actggcggag gaggtcatag
5461 gagaggtgtt gggtagcatg gcccttggcg cggagcttgc cggggccgcg gtgcccga
5521 gcatcgcaaa cgggtgtcgc cagggcgtag agcttggggg cgagcaggac cgtctcgag
5581 ctgtgggcgt cgctgcggca gcgctcgcac tgggtctcgc actcgaccag ccaggtgagc
5641 tgggggttct ggggatcgaa gacgaggggg ccccggttcc gcttgaggcg gtgtttacct
5701 ttggtctcca ttagctcgcg tccggcgcgg gtgaggaaga ggctgtcggg gtccccgtag
5761 acggagcgca ggggcccgtc ggcgaggggg gtgcccgggt cgtcggcgta gaggtgagg
5821 gccactcgg agatgaaggc acgcgcccag gcgaggacga agctggcgac agtcgagggg
5881 tagcgtcgt tgggcactaa tggcgaggcc tgctcgagcg tgtggagaca gaggtcctcg
5941 tcgtccgcgt ccaggaagtg gattggtcgc cagtggtagt ccacgtgacc ggcttgcggg
6001 tcggggggta taaaaggcgc gggccggggg gcgtggccgt cagttgcttc gcaggcctcg
6061 tcacggagat ccgcgtctcc ggcgtctcgc gctgcgctg catctatgat cccgaagtct
6121 tcaggtgggt acgctacgac aaagtccggg gtgacctcag cgctgaggtt gtctgtttct
6181 atgaaggcgg aggagcggac ggagaggtcg ccgcgggcga tggcttcggg ggtgcgggcg

```

15⁺
Reader

```
6241 tccatctggc tggcgaagac caccttctta ttgtcgaggc gtgtggcgaa actgccgtag
6301 agggcggttg agagaagctt ggcatgctg cggagcgttt ggtttctgtc ccggtcggcc
6361 ttttccttgg cagcgatgtt gagctgcacg tagtctcggg cgaggcagcg ccactcgggg
6421 aagatgctgt tgcgctcgtc cggcaggagg cgcacggccc agccacggtt gtggaggggtg
6481 accacgtcca cggaggtggc tacctcgccg cggaggggct cgttggtcca gcagaggcgg
6541 ccgcccttgc gggagcagta ggggggcagg acgtccagct ggtcctcgtc gggggggctcg
6601 gcgtcgatgg tgaagaaggc gggcaggagg tcgggggtcga agtagctgag gggctcgggg
6661 ccgtcgaggc ggtcctgcca gcggcgggcg gccaggggcgc ggtcgaaggg gttgaggggt
6721 tggccggcgg ggaaggggtg ggtgagggcg ctggcataca tgccgcagat gtcatagacg
6781 tagaggggct cccgcaggag gccgatgaag ttggggtagc agcggccgcc gcgcaggctc
6841 ttcgcgagc tagtcataca gctcgtggga gggcgcgagg aggttcggcc gaggtgcggc
6901 gcctggggcc ggtcggcgcg gtagaggagc tgcttgaaga tggcgtggga gttggagctg
6961 atgggtggcc tctggaagac attgaaggcg cgtgggggaa ggccggcctg cgtgtggacg
7021 aaggcgcggt aggactcttg cagcttgccg accagacggg cggtgacgac gacgtcctgg
7081 gcgcagtagc gcagggtggc ctggacgat tcgtaagcgt ccccttggtt ctccttcttc
7141 cacaggctct tgttgaggag gtactcctga tcgctgtccc agtacttggc gtgtgggaag
7201 ccgtcctgat cgcgtaagta gtccccctg cggtagaact cgttcacggc atcgtagggg
7261 cagtgtccct tgtccacggc cagctcgtag gcccgggcgg ccttgcgagg gctggtgtgc
7321 gtgagggcga aggtgtccc gaccatgaac ttgacgtact ggtgctgggg gtcctcgggg
7381 gccatgacgc cctcctcca gtccgcgtag tcgcggcgcg ggcggaaggc ggggttgggc
7441 aggttgaagc tgatgtcatt gaagaggatg cggccgttgc gcggcatgaa ggtgcgggtg
7501 accaggaagg agggggggcac ctgcggcggc tgggcgagca cctgcgcggc caggacgatc
7561 tcatcgaagc ccgagatgtt gtggccacag atgtagacct ccaggaagag gggcgggccc
7621 cgcaggcgcg ggcgcgcag ctgggcctag gccagggggt cctcggggtc gtcgcgcagg
7681 ccggggcccc gctcctgcgc cagctcgcg aggtctgggt tgtggggccag caggtgctgc
7741 cagaggggtg cggtgaggcg ggcctgcagg gcgtgccgca gggcctttaa ggccggggcg
7801 atggcgcgct tctgcgggca gagcatgtag aaggtgtggg ctcggggtctc cagcgtgca
7861 ggcgggctct ggacggccac cacctgcagc gcggcgtcca gcagctcctc gtcccccgag
7921 aggtggaaga ccagcaggaa gggcacgagc tgctttccga agcggccgtg ccaggtgtag
7981 gtctccaggt cataggtgag gaagaggcgg cgggtgccct cgggggagcc gatggggcgg
8041 aaggcgatgg tctgccacca gtccgcccgc tggcgctgaa cgtggtggaa gtagaagtc
8101 cggcggcgca cggagcaggt gtggcggtg tggaaagatg gccgcagtg ctcgcacttc
8161 tgggcctcct gtagctctt gatgagttg cagcgccct gggtgaaag caggcgagg
8221 gggaaagggg ggcggggcg cgggccctcg ggcggggggg ccagcgcac gtggtgcagg
8281 tgggtgtgct ggcgggtgac cacctggacg aaggtgggccc cggcggcgcg ggccagctcc
8341 accgcggtct ggggggtagc ctgcaggagg tcggggggcg ggcgaggag gtgcagctgg
8401 aagaggttgg ccaggcgct gtcccagtg cgtggttagg tgatgetcca gctctccccg
8461 tcctgggtgg tgccctggag gcggaggggt gcgcggcgct cgagcaggag ccccgcgctg
8521 ccggcctccg cggcctcggc ggcggcgccc ggtctcaggc gggcagctgg gccaggggca
8581 cggcgcggtt gagctcgggc agcgggaggt ggtcgcggcg cagacgcgag gcgtggcgga
8641 tgacgcggcg gttgatgtt tggatctgag ggttcccga gaagaccag gggcggtga
8701 ctcggaacct gaaagagagt tccacggaat caatgtcggc atcgtgggtg gccacctggc
8761 gcaggatctc ggacacgtcc ccgctgtttt cgcggtaggc gatgtcctgc atgaactgct
8821 cgagctcgtc ctctgccagg tccccgtggc cggcgcgctc cacggtggcg gccaggtcga
8881 cggtagtgcg gttcatgat gccaccagg cgttctctcc gttctcgttc cacacgcgac
8941 ttagaccag ctggccgtcg gcgtcccgcg cgcgcagtag tacctggggc aggttgagcg
9001 ccaccaggcg gttgaagggc gcctgcaggc gcagggcgtg gtgcaggtag ttgaggggtg
9061 tggcgatgtg ctcgcagagg aagaagtta tgaccagcg gcgcagggtc agctcgttga
9121 tgtcgcccag gtccctcagg cgtgcagta cccgtagaa ctcggggcg aagcgaaaaa
9181 actcgtgctg gcgggcccag accgtgagct cctcttccag ggcggcgatg gctcggcca
9241 ccgctgccc cactctctcc tctaaggagg gcggggcgct gctgggtccc gccaccgccc
9301 cctcttcttc ctcttctccc tccaggggtg gcatctcttc gtcttcttct tctgtgctg
9361 ctgcctccgc ggggacgggg ggcgaggccc ggggacggcg ccggcgcaag ggcagccggt
9421 ccacgaagcg ctcgatgacc tcgccccgca tgccggcgcat ggtctcgggt acggcgcggc
9481 cgccctccc gggccgcagc tcgaaggcgc ccccgcgag cgcggtgccg ctgcagaggg
9541 gcaggctgag cgcactgat atgcagcgt tcaactctct ctaggtacc tctgctgtt
9601 gcagcgcttc ggcaaacctc cgcactgct ctccggacc ggcaagcgt tcgacgaagg
9661 cgtctagcca gcaacagtcg caaggtaagt tgagcgcggt gtgcgtcggg agccggaagg
9721 cccggctgac gaggaagtga aagtggccg tcttgagctg ccgtagggcg cggaggggg
9781 tgaggtcttt gcggccggcg cgtgcaggc ggatgcggtc ggccatgccc caggcctcct
9841 gctggcagcg gccgatgtcc ttgagctgct cctgcagcag atgtgccacg ggcagctccc
9901 ggtcggcgct caggtgggtg cgaccgtagc ccccgagggg gcgcagcagc gccaggtcgg
9961 ccaccacgcg ctcgccagg atggcctgct gcatgcgctg cagggagtct gagaagtcat
10021 ccaggtccag gaaccggtgg taggcgcccg tgttgatggt gtaggagcag ttgccagca
10081 cggaccagtt gaccacctgg tagtggggct ggatgacctc ggtgtagcgc agtcgactgt
```

2nd
read in sequence

10141	aggcgcgcgt	gtcaaagatg	taatcgttgc	agaggcgag	caggtgctgg	tagccacga
10201	gcaggtgggg	cggagggtag	aggtagaggg	gccagtgttc	cgtggccggg	tggcgggggg
10261	agaggttcat	gagcatgagg	cggtagtagc	ggtatagtaa	gcgggacatc	caggcgatgc
10321	cgacggcgga	gacggaggcg	cggtgccact	ggtgggcgcg	gttccaaatg	ttgcgcaccg
10381	ggcggaagag	ctccacgggtg	taaatggatt	gccccgtgag	gcgggcgcag	tcgagggcgc
10441	tctgtcaaaa	agaaccgggt	gtggttggtt	ggtgtgtggt	agcgatctat	ctttctttgt
10501	gatcttggta	gtgaagcctg	ccaggctcca	gcagggggcg	tccgccgtct	ttccttcctt
10561	ccctatctgg	aggtgtgtct	ctgttctctt	ttttatttca	tgtagccatg	catcccgttc
10621	tgcggcagat	gaagccggccg	gccggcgccc	tgggcgcgga	gggggcgacg	cgctctcggt
10681	cgccctcgcc	gtcgctgacg	cggccgcgcg	aggaggggga	gggcctggcg	cggctgtcgg
10741	gcgcggcggc	ccccgagcgg	caccacgggg	tgcagctcaa	gcgagaggcc	atggaggcct
10801	atgtgccgag	gcagaatgcg	ttccgcgagc	gaccggggga	ggagggggag	gagatgaggg
10861	acctgcggtt	ccgcgcgggg	cgggagatgc	agctggaccg	ggagcgagtg	ctccagcccc
10921	aggactttga	ggggcgcggtg	gaggagggcg	ggggagttag	cgcggcgcgg	gcccacatga
10981	gcgcggccag	cctggcccag	gcctacgagc	agacggtacg	cgaggaggtc	aacttccaaa
11041	agaccttcaa	caacaacgtg	cgcaccctgg	tgagccggga	cgaggtgacc	atgggactga
11101	tgcacctgtg	ggactttgtg	gaggccttcc	tgcagcaccg	ccggtcccg	gcgctgaccg
11161	cgagctgct	gctgatcgcg	cagcactgcc	gggacgaggg	catggtgaag	gaggcgctgc
11221	tgagcctggg	cgcgcccag	agccgctggc	tggtagacct	ggtgaacctg	ctccagacca
11281	ttgtggtgca	ggagcggtcc	atgagcctga	gcgagaaggt	ggcgcccatc	aactactcgg
11341	tggcgaccct	ggccaagcac	tacgcgcgca	agatctccac	cttctacatg	cgcgcgggtg
11401	tgaagctgct	ggtgctggcc	gacaacctgg	gcatgtaccg	caacaagcgg	ctggagcgcg
11461	tggtcagcac	ctcgcgcgcg	cgcgagctca	atgacaagga	agctcatgtt	tggcctccgc
11521	cgggcgctgg	ccggggaggg	cgaggagtag	ctggaggagg	aggaggacct	ggaggtcgcg
11581	gaggaggagg	agctggaaaag	aggaggagtt	cggtccccgg	ggaccgcggc	cgctgaggtg
11641	gcagtccccg	ctgactgcga	gcgatgaggg	tgatgtgtac	tgatggcaac	catccccctt
11701	tttaacaaca	acagcagcat	ggcggcgagc	tctgaagctg	ggcgggcggc	ggcggggggtg
11761	agcgcgccct	ccctggcgcc	cgagcgggcg	acgcggtatg	aggcgctgcc	ctccctggac
11821	gagccttggg	agcaggctct	gcggcgcatc	atggcgctga	cggccgacgg	gtctcggcgc
11881	ttcgcgagcc	agccccctgg	caaccgcacg	ggggccatcc	tggaggcggt	ggtgcctccg
11941	cgacgaacc	cgacgcacga	gaaggtgctg	accgtggtga	acgcgctgct	ggagacctcg
12001	gccatccgcc	cggacgaggg	cggcatggtg	tacgatgcgc	tgctggagcg	ggtctcccg
12061	tacaacagcg	gcaacgtgca	gaccaacctg	gaccggctgt	cccaggacgt	gcggcaggtg
12121	atcgcccagc	gcgagcgctc	gagcgccaac	aacctgggca	gcctggccgc	gctgaatgcc
12181	ttcatcgctc	cgctgcccgc	aacggtggag	cggggccagg	agagctacct	ggggttcttc
12241	agcgcgctgc	ggctgctggt	gagcgaggtg	ccgcagacgg	aggtgttccg	ctcggggccc
12301	cacaccttcc	tgcaggcggc	gcggaacggt	tccaagacgg	tgaacctcaa	ccaggccatg
12361	gagaacctgc	ggccccctgtg	ggggctgcag	gcccccgctg	gggagcgcg	gcacgtgtcc
12421	tccctgctga	cgcccaacac	ccggtgctg	ctgctcctgg	tggtccctt	cgcggaggag
12481	atgaacgtca	gccggagctc	ctacattggg	cacctgtga	cactctaccg	cgagacgtcg
12541	gccaaactgc	atgtggacga	gcgcacgtac	caggagatca	ccagcgctcag	ccgggcgttg
12601	ggcgacgagg	acgacgcggc	gcggctgcag	gccaccctca	acttcttctt	gaccaaccgg
12661	cagcggcggc	tgccggcggc	gtatgccctg	accgccgagg	aggagcgcat	cctgcgctac
12721	gtgcagcagg	ccgtgagcct	gtacctgatg	caggacgggg	cgacggccac	gggcgccttg
12781	gacgaggcca	gccgcaacct	ggagcccagc	ttctacgcgg	cgcaccggga	cttcatcaac
12841	cgctgatagg	actacttcca	tcgcgcggcc	gcggtggcgc	ccaactactt	tatgaatgcc
12901	gtcctgaacc	cccgtgggt	gccctcggag	ggcttcttca	ccggcggtga	tgacttccc
12961	gagcaggacg	agggggagga	gcggccctgg	gacgcctttg	acagcgacga	ggaggggcgc
13021	ctcatgctgc	ggtccgcagc	ctcctcagag	ccctcctcct	ccttcacccc	cttccccctg
13081	accgaggagc	cgccctcgcg	gccctccacc	ccggccctct	cgcgcgctcc	gtcccgggca
13141	tcctccctgc	tctctctggc	ctctctggga	aagcgggagg	gaggggactc	gctcgcttac
13201	tcgcccggca	cgccaccta	tggctctcgc	tggggctcgc	gccgtccag	cctggccagc
13261	ggcgccgaca	gcctggagtg	ggacgcgctg	ctggccctc	ccaaggatgt	gaacgagcac
13321	ccaggcgccg	ccgcggcgcc	ccgcggcgcc	gcctcccgt	cctcccctga	ggaggacatc
13381	gacgccatca	gcagccgggt	gttcacctgg	cgcacgcgcg	ccaggagat	gggcctgccc
13441	gtggccagct	tctcccgcg	ccaccagcgg	cgccccgggg	ccctcgaaga	cgacgaggag
13501	gaggaaagct	ggcgccagga	ccggttcttt	cgcttcgaag	cgcccgagg	aaacccttc
13561	cgccacatcg	cccccaaggg	gctgtaatgc	aaaaaagcaa	aataaaaaac	ccctcccggg
13621	ccaactcacc	acggccatgg	ttgtccttgt	gtgcccgctc	gatgaggagg	atgatgccag
13681	cagcgccgcc	gcagggagcg	tcgcctccgc	cgctctacga	gagtgtggtg	gggtcttcgc
13741	tcacggagcc	tctttatgtg	ccgcccgggt	acctgggccc	caccgagggg	cggaaacagca
13801	tccgttatct	acagctcccc	ccgctctacg	ataccacaaa	gatctatctg	atcgataaca
13861	agtcggcgga	tatcgccagt	ctgaactacc	aaaacaacca	cagtgaactt	ctcaccagcg
13921	tgggtgcagaa	cagcgacttc	acgcccattg	aggcgagcac	gcagaccatc	aacctggatg
13981	agcgctcgcg	ctggggcggg	gagtttaaga	gcattctgac	caccaacatc	cccaacgtga

```
14041 cccagtacat gttcagcaac agcttcgggg tgccgctgat gagcgcgcg gataaagaga
14101 caaatgcccc cacctacgag tgggttcccc tgaccctgcc cgagggcaac ttctcggaca
14161 tcgcggtcat cgacctgatg aacaacgcga tcgtggagaa ctacctggcg gtggggcggc
14221 agcagggggg caaggaggag gacatcgggg tgaagatcga cacgcgcaac ttccgcctgg
14281 gctatgaccc ggagaccaag ctggtcatgc ccggcagcta caccaacatg gcctttcacc
14341 ccgacgtggg gctggcaccg ggctgcgcca tcgacttcac cttctccgcg ctaaacaacc
14401 tgctgggcat ccgcaagcgc tacccttacc aggagggctt catgctgacc tacgaggacc
14461 tggcgggggg caacatcccc gcgctgctgg acctaccac ctatgatcag gagaactcca
14521 gcaccatcaa gcccctgaag caggacagca agggctcgag ctaccacgtg ggcgaggacc
14581 ccgaggcggg ggacaccttc acctactacc gcagctggta cctggcctac aactacgggg
14641 acccgccac gggcaccgcc tcccagacgc tgctggtctc cccggacgta acctgcggag
14701 tggagcaggt ctactggagc ctgccggacc tgatgcagga cccggtgacc ttccggccca
14761 gccagacgcc gagcaactac ccggtggtag ccacggagct actgccgctg cgctcccggg
14821 ccttctacaa caccagggcc gtgtactccc agctcctgca gcaggccacc aacaacaccc
14881 tggctcttaa ccgcttcccc gagaaccaga tcctcctgcg cccgccagag tccaccatca
14941 cctccatcag cgagaacgtg cctcgctga cggaccacgg cagctgcccg ctgcgtaaca
15001 gcatccccgg ggtgcagcgg gtaaccgtca ccgacgcgcg gcgcccgtg tgtccctatg
15061 tgtacaagag tctcgggggt gtgaccccca ggggtgctcag cagccgaacc ttctaaccga
15121 cagccctacc cgtcacaggg gagacagaga aaagacagcc agccccgcca tggccatcct
15181 cgtctcgccc agcaacaact ttggctgggg actgggcctg cgctccatgt acgggggcgc
15241 ccgcccctg tccccggatc acccctgat cgtccgacgc cactaccggg ccaactgggc
15301 cagtctgaag ggacgcgtgg cccccagcac catagcgaca acggatgacc ctgtggccga
15361 cgtggtcaac gcgatcgccg gcgccaccgc ccgcccgcgc cgccatcgtc gacgtcggag
15421 ggcgcgcgc gtctcctccg tggcgtcac cggggaccgc gtggccgatg tggtaaccgc
15481 ggtgcggcgc gtagcccgcc cccgcgcgc gcggcgccgt tcttcgcgca tgcagaccac
15541 gggggacccc gtggcggtat tgggtggcgg ggtggaagcg gtggcgcgcc ggaggcggag
15601 caccggcgcg cggcgcaggc gctccgcgcc ggccatcctg ggggtgcgcc gcagccgccg
15661 cctccgcaaa cgcacctcgt cctgagattt ttgtgttttg tttttctgc ctcccgtggg
15721 tgaacaagtc catccatcca tccaacatcc gtggctgctg tgtctttgtc ttttctttgc
15781 gttgcgcccc agttgagccg gcaccgacgc gctcggccat ggccatctcg cgccgcgtga
15841 aaaaggagct gctgcaggcg ttggcgcccc aggtgtacgg ggccctaag aaggaggaga
15901 aggagctcaa agaggagtcc aaagtgtacc ttaaaccgct gaagaagcgc cgcaaggcca
15961 agcggggggt gagcgacagc gacgaggtgc tgggtgctggg cagcgccccg aggcgcgct
16021 ggacggggcg gcgcgtgcgc gccacctac cgcccggtgc cagcctcgcc tacgtcccgg
16081 gtcttcggag gtcgagcgcc accaagcgt ctgcggacga gttgtatgcg gacacggaca
16141 tcctgcagca ggcgtcccag cgcctgaacg aatttgctta tggcaagaga gcccgcgggc
16201 agcggcgggc ccgcccctcg ccgacccccg cgtcccgcgg ccggaccacc aagcgtctt
16261 atgacgaggt cgtggcagac agtgacatcc tgcagcaact tggatccggg gaccgctcca
16321 atgagttctc ctatggcaag cggctcgtgc tgggggagtc aggagacacc gtcccggctg
16381 tggcgtccc gctggaggaa ggaggaacc acacaccag cctgcagccg ctaccgagc
16441 ccattgcccc ggtgtcccct cgcacggccg tcaagcgccg ggcgcccgcg cagcgacca
16501 ccgcctcact ggtccccacc gtgcaggtcc tggcccccaa gcgtcgtctg caggaggtgg
16561 tgggtggagc gcccgctcca gcacccacgc cgcccttagc cccgcggcgg tccagccggc
16621 gcatcattct ggctccgcgc cgggcgggcc ggcccaggc cgtcgtggcg ccgcagctca
16681 gcgcggccgc ggcgtggag cgggcggcgg ccgcccgtgc cctgccaccg gacacggagg
16741 acgacctggt ggagatggca gaggctgtcg ccgcgcccga ggtgctgccc agcctccccg
16801 tctccatcat gccgcccacc gccacggagg tggccctgcc cgtacagacc ccactgccgc
16861 ccgtggcggt ggccaagagc tccctgacct cggcctccg cgcgctgatg ggcaccgagc
16921 ggggtgcggt tccagtctg gaggcgcccc tgggtggcat gccgtgctc cgggccacca
16981 ccgcccgtgc cagcccccg cggcgctgc cccgagggc cgtgcgggac atcccggcca
17041 ggcagccccg cacggtatcc ctgcccgtgc tcacggagcc cggcccggcc acccggtcg
17101 cctccgtgcg cgcggcagcc caagtctgc aggcgcccc cgcccagcc gccaccgtct
17161 ccgtgggggt gggcaccgag ccggtggtgc agtccatcac ggtcaagcgg tcaaagcgcc
17221 tgaccaagca ccatcggggg gcagaccatc gacgtcaccg tgcccaccgt ccgactgtc
17281 agcgtgggca ccaacacgcc ccggtgagg agcgcctcgg tggcgctcca gaccgtccc
17341 gagaccgct cccagggggg gcaggtggct ttccaaccag cgtgctagcc caccgcacac
17401 ccaggcaggt cgggtgacg gcggtggtgc cccccaccc gcgcgccccg ctggttccgg
17461 tggccccggc cccgcggcgg ttccggtgct tccccagcc cctccagccc cgcgcgccgc
17521 gcgtgcgcct cgcgccccc gagegcctcg gcgtcgccgc cgtaccccgg tggcggtggc
17581 agcgccgccc gcccgacgc gcggtcccc gccctcggct gccgaggcgg cccatcgtgc
17641 tgcccggggg gcgctatcat ccagtcagg ccatggctcc caccgcccga cgcgtcatct
17701 ggcgttgatt tatttttggg gacctgactg tgttggtttc cttaaatttt ttatcctcct
17761 cctcctctgc tgaagccaga cgatgctgac ctaccggttg cggctgcccc tgccgatgcg
17821 gagaccgaga ctccgcgggt ggttccgcgt ggcgcctcgg cgcagcgcg gcaggcgcg
17881 gtaccgcccg gggccgatga ggggtggcat cctgcggcg ctggtgccc tcatcgcgcc
```

```
17941 atccatctgg gccatccccg gcacgcctc ggtggcgatg agtgctagac aacgcaatta
18001 acggcgctgc tgtgtatgtg tgtcttccat gtgccttcct tccttcgttc ccaacggaac
18061 agcagcaccg tctccatgga ggacctaagc ttttccgcgt tggctccacg ctttggcacg
18121 cggcgggtca tgggcaactg gagcgaaatc ggcacgagtc agatgaacgg cggcgcgctc
18181 agctggagca atatctggag cgggctgaag agctttggta gttctctggc ctccacggcc
18241 aacaaggcct ggaacagcgg gacggtgacg agcgtgcgca acaagttaa ggaatgccag
18301 gtgcagggga agataggtga ggtcattgcc tccggggtcc acggtgccct ggacgtggcc
18361 aaccaggccg tctcccacgc cgtggaccgc cggtgcaaca gcagcagctg ggcagcagc
18421 agctcctccg ccagcagcag caacagatgg gcctcgtgga accctcctat gagatggaga
18481 cagacgagct gcctcctccc cccgaggacc tcttgctccc tctcctcctc ccgcccctg
18541 cctcgccac tcccgcgcgc caatcccgcg ggacgtcccg ccaagcgcgc gccgcgcgc
18601 aggagatcat catccgctcc gacgagcccc ctccctatga agagctgtat cccgacaagg
18661 ccgggatccc cgccaccttg gagctgcgtc ccgagaccaa actgcccgcg gtggccaca
18721 ataagatgcg cccccgcgcg ccgctcacca ccaccacctc ctccgctgcc gccgcgcgc
18781 ccgccccggc ccccgcgctc cctgtgcgtc ggcgtccggc cgcggctccg gccgcgctc
18841 cggcgagtcc caaaggcccc ccagtgggg gtcgcgcgcg gcgggtggca aaacaaactc
18901 aacaccattg tgggactggg tgtccgcaca tgcaagcgcg gtcgttgta ctgagagaga
18961 cagcatggag aaacaacaat gtctggattc aaataaagac acgcctattc ttccacggtg
19021 ctccgcgctg tgttattttc aacgggctgt tctcttttgc atctctgtgc catcgcgcca
19081 cggggaattc cgcaggatgg cgacgccgct gatgatgccg cagtggctct atatgcacat
19141 ctccgggcag gacgcgtccg agtacctgtc tcccgggctg gtgcagttct cccaggcgac
19201 ggagacctac tttaacctga acaacaagtt taggaacccc accgtcgcgc ccaccacga
19261 tgtgacgacg gagcgctcgc agcgctgca gctgcgttc gtccccgtgg acaaggtagga
19321 cactcagtac acatacaaga cccgcttcca cctggcggtg ggcgacaacc gctgttgga
19381 catggcgagc acctcttttg acatccgggg aacgctggac cggggacctc cctcaaacc
19441 gtactcgggc accgcgtaca acatcatggc tccaagagc gctcccaaca actgtcaata
19501 tctagacctt aaaggtgaaa ctgaggctgg caaagttaat accattgctc aagcaagttt
19561 tgtgggtcct attgatgaaa ccacgggaga cattaaaatt acagaagaag aagacgaaga
19621 gaccaccatc gatcctttgt atgagcccca accccagctt ggtccaagct cgtggtcaga
19681 caatatacct tctgcgacta gcgagctgg aagagtctc aaacagacca caccgctca
19741 acctgtttac ggttctttat cctctccgac aaatattcac ggtgggcaaa cgaaggatga
19801 caaggttaca ceattgtact ttacaacaaa tcccgcaccc gaagccgaag cactgaaga
19861 aaatggatta aagccaaatg tcaccctata ctacaggat gttgacctaa aagcaccaga
19921 tactcatctg gtctatgctg tgaatcaaac ccaggaattc gctcaatatg gacttgaca
19981 acaggccgct ccaaacaggg ccaattacat cggcttcagg gacaacttta tcgggctgtt
20041 gtactacaac agcaatggca accagggcac gctagccggt caggcctctc agctcaacgc
20101 ggtggtcgac ctgcaggaca ggaatcaccc aactagctac cagctcttcc tcgatagcct
20161 ctatgacagg tcgaggtaact ttagcctgtg gaaccaggcc atcgattctt atgacaagga
20221 tgtgcgtgtg ctggaaaaca atggcgtgga ggacgagatg cccaactttt gctttcccat
20281 cggcgccatc gagaccaaca tgacatttac acagctcaaa aagagtgaga atggtggctc
20341 aagagccaca acctggacaa aggagaatgg gtagatggc ggaaacggag cggagcacta
20401 cctgggcata ggcaacctca acgcatgga gatcaatctc acggccaacc tctggcgag
20461 ctctctctac agcaacgtgg cgtgtacct gctgacaag tacaagtttt cccgcacca
20521 cgtccccatc gacccaaca cgcactccta tgactacatc aacaagcgc tgccctcaa
20581 caacctcatt gatacctttg tcaacatcgg ggcgcgctgg tcccggatg tcatggacaa
20641 cgtcaacccc ttcaaccacc accgcaacta cggcctgcgc taccgctccc agctcctggg
20701 caacggccgc tactgcaagt tccacatcca ggtgccgcaa aagtcttttg cctcaagag
20761 cctgctgctc ctgcccgggg cgacctacac ctacgagtgg tcttccgca aggacgtcaa
20821 catgattctc cagtccacgc tgggcaacga cctccgcgcg gacggggcca aaatcaacat
20881 cgagagcgtc aacctctacg ccagcttctt tcccatggcc cacaacaccg cctccacct
20941 ggaggccatg ctgcgcaacg acaccaacaa ccaaaccttt attgacttcc tctcctccgc
21001 caacatgctc taccctatcc cggccaacgt caccaacctg cccatctcca tcccagccg
21061 caactgggcc gccttccgcg gctggagctt cacgcggtg aagcacaacg agacccccgc
21121 cctgggctcg ccttccgacc cctactttac ctactcgggc tccatcccc tctggacgg
21181 gaccttctac ctgggccaca ccttccgcgc catcagcatc cagttcgact cctccgtggc
21241 ctgggcgggg aatgaccgcc tgctcactcc caacgagttc gaggtcaagc gcacgtgga
21301 cggggagggg tacacggtgg cccagaccaa catgacaaa gactggttcc tctgagat
21361 gctcggccac tacaacatcg gctaccaggg ataccacctg ccagagggtc accgcgaccg
21421 cacctactcc ttctgcgca actttgagcc catgtgccgc cagggtgccg actacgcaa
21481 ccacaaagat gtagcttg aggtgccac caccaaccag ttcaacagca gcggctttgt
21541 atccgcggcc ttcaccgcgc gcatgcgcga ggggcacca taccgcgcca actggcccta
21601 cccgctcatc ggcgaaagac ccgtgcagac cgtgaccag cgcaagttcc tctgcgaccg
21661 cagctcttgg cgcacccct tctcctccaa cttcatgtcc atgggacccc tcaccgacct
21721 gggccagaac ctctctacg ccaactcggc ccacgcctc gacatgacct tcgaggtcga
21781 cgccatggat gaaccacccc tctgtatgt tctgttcgag gtctttgacg tctgcggcgt
```

```
21841 gcaccagccg caccgaggcg tcatcgaggc cgtctacctg cgcacgccct tctccgccgg
21901 gaacgccacc acctaaggcg gagccgcgca ggcattgggca gcaccagga cgagctccga
21961 gccatggcgc gcgacctcca gctgccccgc ttcctgggca cctttgacaa gtccttccccg
22021 ggcttcttgc aagagtccca gcgctgctgc gccatcgtca acacggccgc ccgccacacc
22081 ggaggccgcc actggctggc cgtcgccctg gagcccgccct cgcgcacctt ctacttcttt
22141 gaccccttcg gcttctccga ccgggagctc gccagggtct atgactttga gtaccagcgc
22201 ctgctgcgca agagcgccat ccagagcacc ccggaccgct gcctcacgct cgtcaagagc
22261 acccagagcg tgcagggacc gcacagcgcc gccctgcggac tcttctgcct ccttcttctc
22321 gccgcctttg cccgctaccc cgacagcccc atggcctaca atcccgtcat ggacctgggtg
22381 gagggcgctg acaacgagcg gctcttcgac gccgacgtcc agcccatctt ccgcgccaac
22441 caggaggcct gctacgcgtt cctcgctcgc cactccgcct acttccgcgc ccaccgccac
22501 gccatcatgg aacagacaca cctgcacaaa gcgctcgata tgcaataaag gctttttatt
22561 gtaagtcaaa aaggcctctt ttatcctccg tcgcctgggg gtgtatgtag atgggggggac
22621 taggtgaacc cggaccgcgc gtcggtctcc ctccatcccc tcttctctca aaacaggctc
22681 tcatcgctcg cctccgttcc cacggggaag atgggtttct gcacctgga gctgggcccc
22741 cacttgaact cgggcaccgt cagtggaggg cgcgtctgca tcagggcggc ccacatctgt
22801 ttggtcagct gcagggccag catcacatcg ggggcgctga tcttgaaatc acaattcttc
22861 tgggggttgc cgcgcgaccc gcggtacacc ggggtttagc actggaacac cagcaccgcg
22921 ggggtgggtc cgctggccag aatcttgggg tcttccacca gctgggggtt cagcgcgcgc
22981 gaccgcgtca gcgcgaagg ggtgatcttg caggctcgcc ggcccagcag gggcacctgg
23041 cggcagcccc agccgcagtc gcacaccagc ggcattagca ggtgcgtctc cgcgttgccc
23101 atccgggggt agcaggcctt ctggaagacc ttgagctgct cgaaggcctg ctgcgcttg
23161 gagccctccg agtagaagag gccgaggac cgcgcgaga aggtgttggg ggccgacccc
23221 acgtcgctgg tgcaacacat ggccccgtcg ttgcgcagct gcaccacgtt cgggccccag
23281 cggttgggtg tgatcttggc gcgctcgggg gtctcgcgca gggcgcgctg cccgttctcg
23341 ctgttgagat ccatctccac cagctgctcc ttgttgatca tgggcagccc gtgcaggcag
23401 tgcagccctt ccgagccgct gcggtgctgc cagatcacgc acccgaggg gttccactcg
23461 ggcgtcttca gaccgcgcgc ctccaccaca aagtccagca ggaagcgggc catcactgtc
23521 agcaggctct tttgcgtgct gaaggtcagc tggcagctga tcttgcgtc gttcagccag
23581 gcttggggcc cgcgcgggaa gcactccagg gtgctgccgt ccggcagcag cgtcaggccc
23641 ttgacatcca ccttcagggg gaccagcctc tgcacagcca gatccatggc ccgctggcac
23701 ttctgctcct gagcatccag ctgcagcagc ggccgggcca ccgcgggct cggggtcacc
23761 gggcgcgggg ggcgggcccc ctccctctcc tccccatctt cgccttctct cctcgcgggc
23821 cgcgcgctcg ccgctgcgct ctcttcagcc tcgtcctcct cctcctcgct gaccaggggc
23881 ttggcacgcg cgcgcttccg ccgctcctgc acgggcggag aggcgcgcgc cttgcggcct
23941 ccccgcgccc ggctgggggt cgcgacagga gcgtcgcca caatcagcac cccctcttcc
24001 ccgctgtcat agtcagacac gtccgaatag cggcgactca ttttgcttcc cctagatgga
24061 agaccagcac agcgcagcca gtgagctggg gtcctccgcg gccccgaccc ttccgcgcgc
24121 accaccgccc ccacctccgc ccacgtcacc gccaccttca ctgcagcagc ggcagcagga
24181 gcccaccgaa accgatgacg cggaggacac ctgctcctcg tctcctcgtg cctccgcctc
24241 cagcgagtgc ttcgtctcgc cgttggaaga cagagctcc gaggactcgg cggacacggt
24301 gctccccctc gagccccgcc gggacgagga ggagcaggag gaggactcgc ccgaccgcta
24361 catggacgcg gacgtgctgc agcgccacct gctgcgccag agtaccatcc tgcgccaggt
24421 cctgcaggag gccgcccccg gcgcagccgc ggaggccgcc gaggcgccct cgggtggcgga
24481 gctcagccgc cgcctggaag cggccctctt ctcccccgcc acgcgcgcgc ggcgccagga
24541 gaacggaacc tgcgccccgg acccccgcct caacttctac ccggtcttca tgctgccgca
24601 ggccctggcc acctacctcc tcttcttcca caacaaaag atccccgtca gctgccgcgc
24661 caaccgcccc cgagccgacg cgcactggcg gtgcccagt gggacccctt tacttgacta
24721 tccaaccacc gacgaggttt acaagatctt tgagggcctg ggggacgagg agccggcctg
24781 cgccaaccag gacctgaaag agcgcgacag cgtgttagtc gagctcaagc tggacaaccc
24841 ccgctggcg gtggtcaagc agtgcacgct gcagaccctg ctggtgcgcc gcgcgagccc
24901 gctgccaccc aaggtcatga gcacgctcat ggacctcctg gtggtcagcg acgagcagct
24961 actccccgac gagggcgaga cgcccctcga ctgcatgcac accttcttca cctccgcga
25021 ggcccgtgg atgcacacct cggaccccaa ggtcctggag gagcggcgca agaccgtcac
25081 cgccgctgc atggtcacgg tgcagctcca ctgcatgcac cgccagggt cgtcaagct
25141 gatggtcgcg cgcctcgga agtgcttcca ctacatgttc cgccagggt gcgtcaagct
25201 agtgagcaag atcgccaata tggaaactct taacctggtc tctacttgg gcgtcgca
25261 cgaaaacagg ctccggtcagc acgtgctcca ccacaccttc aagcatgagg cgagacgca
25321 ctacgtccgg gacaccattt acctatacct ggtctatacc tggcagaccg ccatgggggt
25381 ctggcagcag tgctcgagg accgaaacct gcgcgccttg gaaacgtctc tggctcgcgc
25441 tcgccagagc ctgtggacgg gctttgatga gcgcactatc gcgcaggacc tcgccgcgtt
25501 ctttttcccc accaagctcg tagagacctt gcagcgctcg ctccccgact ttgccagcca
25561 gagcatgatg catgccttcc gctccttcgt cctcgagcgc tccggcatcc tgccgcgct
25621 ctgcaacgcg ctccccctcg actttgtgcc caccgtctac cgcgagtgc ccgcgcccc
25681 ctgggctcac tgctacctcc tgcgcctcgc caacttcttc atgtaccact gcgacctcgc
```

```
25741 cgaggacacc tccggcgagg gcctctttga gtgctactgc cgctgcaacc tctgcgacc
25801 gcaccgctgc ctgcgccacca acaccgccct cctcaacgag gtgcaagcca tcaacacctt
25861 tgagctccag cggcccccca agcccgcagg caccctgcca ccgcccctca agctgacccc
25921 cgggtctctgg acctccgcct tcctccgcca ctttgtctcc gaggactacc actcggaccg
25981 catcctcttc tacgaggacg tgtcccgccc ccccagggtg gagccctccg cctgcgtcat
26041 cagcactctg gccattctcg cgcaattgca tgacatcaaa aaggccaggg aagagttttt
26101 gctgacaaaa ggccacggcg tctacctaga cccccacacc ggagaggagc tcaacaccgc
26161 cgccccgtcc accgcccacc atgcccgcctc tccggaggaa gcccattccg agcagcacca
26221 gcaccagcag cagccgagcc accgcccgcg ccaccaccgc tccagctacg cagaccgtgt
26281 ccgaagcgag ctccacgcct acggcggtgc gaccggttcc tcccgcgacc ctgtctctgg
26341 cggatgctct gccagaggaa cccactcccg cgatgctgct cgaagaagag gctctcagca
26401 gcgagaccag cggcagctcc gaaggcagtt tgctcagtac cctcgaggaa ctggaggagg
26461 aggaggaacc ggtcacaccg acgaggccat ccaagccctc ctacaccaac agcagcagca
26521 gcaagagcat cagccagcgc aggaactccg tcgtccccag cgaggctcgt agatggaatc
26581 agacatccat ccaccggagt agccagccag gtaggacacc tccgcccctg gcccgccgac
26641 gctcctggcg ccgctaccgc cagcacatcc tctcgccctc ggagtactgc gccggagacg
26701 gagcctgcgt gcgcccgtac ctactctacc accacaacat caacatccct tccaagatca
26761 tccgttacta caaatcctct tcccgttcca gcgatctcca ggaaggccgc agcagcggcg
26821 gcagcagaac cagcccacgt cagccagctg agagctaaga tcttccccac gctgtacgcc
26881 atcttccagc agagccgcgg cggccaggac gccctcaaaa tcaggaaccg caccctgcgc
26941 tccctcacca agagctgtct gtatcacccg gaggaggcca agctggaacg cacgctctcg
27001 gacgcagaag ctctcttctga gaagtactgc gctcggcagc ggcagaccgg ccggtattta
27061 aggagcggac cctgcgtgcg gacacacatt gacaaaacaa atccccacc cgtacatgtg
27121 gtcttctcag ccacaatctg ggcgtgcgcg cgggtgcctcc gtcgattact ccaccggcat
27181 gaattggctc agtgccgggc ctctccatgat tggccaggtc aatgacatcc gacacaccag
27241 gaaccagatt ctcatctgcc aggcccttat caccgagacg ccacgccccg tccaaaatcc
27301 cccgtcctgg cccgccagcc tgttgctca gatgacgcaa ccgcccacc accctgcacct
27361 gccgcgtaac gaaatcttgg aaggcagact gactgacgcc ggcattgcaat tagccggggg
27421 cggagccctc gcaccagag acttatatgc cctgaccctc cgcggcagag gcatccagct
27481 caacgaggac ctacccctct cggcgagcac tctccggccg gacggcatct tccagctcgg
27541 aggcggaggc cgctcctcct tcaacccacc cgacgcctac ctgacgtgcg agaactccag
27601 ctcccttccc cgcagcggcg gcactggcag cgagcaattt gtcgcgcagt gtcgtcccac
27661 ggtctacatc aaccccttct ccggaccgcc cgggacctac cccgaccagt tcatcgccaa
27721 ctacaacatc ctaacggact ctgtagcagg ctatgactga cgggtccccg ggtcagcagc
27781 ggctgcggga gctcctcgac cagcacccgc gccagtgcc taaccgctgc tgcttcgcca
27841 gggaagggat tcaccggag tacttttgca tcaccgcga gcactttgag gccgagtga
27901 tccccgactc tctgcaagaa ggccacggtc tgcgttcag cctccccacg cgctacagcg
27961 accgccgcca ccgcgatgga gaccgcacca tcctcacttc gtactactgc ggccctgctt
28021 ctttcaaagt tcgctgtctc tgcggccatc ctgctcctca cctcttctt ctgcacctc
28081 tgtgtgagct gtacaaccgc ctgtagcgtc agcccctaca cctcccctg ctccaattt
28141 ctgtccgaca tagaaccaga cctgactctt tactcgggct ctggctctgg ggcagtgaa
28201 gattatgaat atgagctggc taccaacaca ccgaacgaag acattctagg cagcatagtc
28261 atcaacaacc agatcgggac caagaccctg gccctgggat acttttatgc cgccatgcag
28321 tttgtcttct ttgccatcat catcatcgtc ctcatcctct actaccgcg ctacgtgtg
28381 gccaccgccc tcatcgtgca gcgccagatg tggctcctcg aggcgctcct gcggaaaacc
28441 ttctcggcca ccgttgtggt tactccccc aaacaagtca cccctgcaa ctgctcctgc
28501 cgcttcgagg agatggtggt ctactacacc acctcgtct tcatgccctg gtgggacctc
28561 tctcctgct caccgccatg gtcgccttgg ccaactggat agtggatcag atgccagca
28621 ggaaccgcgc ccgcgcgtg ccaccgcccc tcacctatgt gggaccctgc ggcaggacc
28681 acatctacga tgagccaacc gtagggcaat acgtacagat gaagtagctc cccctcttct
28741 ccattccccc atttttctct attcaataaa gttgcttacc tgagttcatc cacactcgg
28801 ctgccagtgc agtctatcca tgcgcggttt tccatactca catagcgcag ccgcgcacgc
28861 ctgcgccagg gacgaaactg tcgaaatgta acatttcgcg cttctgtcag cagcaccctg
28921 ttatagacca gttccaccat gggaccgaag aagcagaagc gcgagctacc cgaggacttc
28981 gatccagttc acccctatga cgtcccgcag ctgcagatca atccaccctt cgtcagcggg
29041 gacggataca accaatccgt ggaagggggt ctgtccctgc acatcgacc gccctcgtt
29101 tttgacaaca ccaggccct caccctggcc ttcgggggag gtctacagct ctccgggcaag
29161 cagctcgtcg ttgccaccga gggctcgggg ctaaccacca acccggtagg caagctggtt
29221 ctcaaagtca agtcccccat caccctgacc gccgagggca tctccctgtc cctgggtccc
29281 ggtctttcta actcagagac cggcctcagt ctgcaagtca cagctccctt gcagttccag
29341 ggcaacgccc tactcttcc cctcgccgce ggtctccaaa acaccgatgg tggaatgggt
29401 gtcaaactgg ggagcgggtc caccacggac aacagtcagg cggtgaccgt tcaggtggga
29461 aatggacttc agctgaacgg cgaaggacaa ctaccgctc ccgccacggc ccttttagtc
29521 tcaggggagc caggcatctc tttcaactac tccagcaatg acttcgtctt agacaatgac
29581 agtctcagtt tgaggccaaa ggccatctct gtcacccctc cgctgcagtc cacagaggac
```

```
29641 acaatctccc tgaattatc taacgacttt tctgtggaca atggcgccct caccttggct
29701 ccaactttca aaccctacac gctgtggact ggcgcctcac ccacagcaaa tgtcattcta
29761 acaaacacca ccactcccaa cggcaccttt ttcctatgcc tgacacgtgt ggggtgggta
29821 gttttgggtt cctttgccct gaaatcatcc atcgacctta ctagtatgac caaaaaggctc
29881 aattttatct ttgatggggc aggtcgggct cagtcagact ccacttataa agggagattt
29941 ggatttagat ccaacgacag cgtaatgaa cccacagccg caggactcag tccagcctgg
30001 ttaatgccaa gcacctttat ttatccacgc aacacctccg gttcttccct aacatcattt
30061 gtatacatta atcagacata tgtgcatgtg gacatcaagg taaacacact ctctacaaac
30121 ggatatagcc tagaatttaa ctttcaaaac atgagcttct ccgccccctt ctccacctcc
30181 tacgggacct tctgtacgt gccccgaagg acaactcacc gtccccgcca cggccccctt
30241 agtctcaggg agcgcaggca tctctttcaa ctactccagc aatgacttcg tcttagacaa
30301 tgacagtctc agtttgaggc caaaggccat ctctgtcacc cctccgctgc agtccacaga
30361 ggacacaatc tccctgaatt attctaacga cttttctgtg gacaatggcg ccctcacctt
30421 ggctccaact ttcaaaccct acacgtgtgt gactggcgcc tcaccacag caaatgtcat
30481 tctaacaac accaccact ccaacggcac ctttttcta tgcctgacac tgctgggtgg
30541 gttagttttg ggttcctttg ccctgaaatc atccatcgac cttactagta tgaccaaaaa
30601 ggtcaatttt atttttgatg gggcaggctc gcttcagtca gactccactt ataaagggag
30661 atttggtatt agatccaacg acagcgtaat tgaaccaca gccgcaggac tcagtccagc
30721 ctggttaatg ccaagcacct ttatttatcc acgcaacacc tccggttctt ccctaacatc
30781 atttgtatac attaatacaga catatgtgca tgtggacatc aaggtaaaca cactctctac
30841 aaacggatat agcctagaat ttaactttca aaacatgagc ttctccgccc ccttctccac
30901 ctctcagggg accttctgct acgtgcccc aagtgccctag agaaccctgg ccgtcagccg
30961 gcctccccct tcccaggcca cccggtacac caccgctcc atgtttctgt atgtgttctc
31021 tccccgcgct ttgtgcagca ccacctcccg ctgctcgagc tgaggatccg tgatggacac
31081 aaagccagga agacacatcc tcagctccgt gggggcgctc aacaactgtt tatgtaaagg
31141 aaaataaaga ctcagagaaa atccaagttc atatgatttt tcttttattg attgggggaa
31201 ttgattcagg tggggtgtgc ataatacaca aaatcacatc agcaggtaca cacctgagac
31261 atcagacagg ggtaaggaca gcgcctcagc ttctggaaca gacatcagaa atatttaatc
31321 tgctggtagc taacactcct tcccaacacc atacactcct ggagggccct ctgcctctcc
31381 tcttcccgct ccgctccctt ctgcccggac caccactccc cctccgtgaa ctgctgcttc
31441 ctcccccgcc gctgcgcccc gatggcctcc gccgccagct tcagccagtg ccgaagcgc
31501 ttgggcgccc gccgagccag cggctcgctc agctcgctggc agcgccggca cccagtgga
31561 atgtcaattg catagtcctc gtcacagtag atgacctccc cccagtgga catgcgcaac
31621 agcttcagat cacagtcata catgatcttt atgtacatca ggtgggcgcc tcgaaacatc
31681 aactgcccc cgtacatcac gcgactcacg ctgggcaggt tcaccgctc cctgaaccac
31741 cagaagatgc gattgtactc gcagccccgg atgatctcgc gcacagggg ggcgcacacc
31801 acctgccccg cgcggcactc cagactggac cttttcagac agtggcaatg aaagtccac
31861 agcgtcgcg cgcacagcg tctccgggct gaaacatatc tgctccagct ccaaccccc
31921 acacaggctg tactgcagga aaatccattc ttgatgggaa aggatgtagc gccaggggac
31981 ccaatctcc aaacagggaa caaacatac cgcggcccg ctggtgcgca cggccccac
32041 cggatgcaac gtgctcacgg agcagatcag ggtgggacag cggccacgt ctcatgcaa
32101 gtcaagtccg gaagtggcac ggggttcgcc accactgcta ctgctgcgc tgccgccacca
32161 gctccatcgg ctctccatc ctctcctgt tccatcggt gaggtgctgc ctctctctc
32221 tctgcccgt gctccatcat gctcgtctgc ggtcatcagg agtcaaaaaa ttcatgggc
32281 accgcacgca gagagaacat ggagcgcagg gggccagggt cccggccgt gcgctcgctc
32341 aactccccca gcaggtactc atagagatgc tctccaaat ccaccgcaaa ccaggcatgc
32401 agaaactctt ccgttcgagg accgcccacg gtaaagacat agccctccc caccttcacc
32461 gctgccagct gcacgcgctc atgtcgttgg gagtacacc ggaccgggc ctggtgttac
32521 tccagcacct gatcgctcag acacctcaca gagatgccag cctgagccag ctctcatag
32581 agaggtggct gaatcttgag cttgaagcag cgagcggtc ggcactccc gcccccttg
32641 aacagggcgg ccgggtcagc catggacttc ctctacatcc ggggtcctg ccacctcaca
32701 aactatctgg ccaatcgct gaccacgggt caccaggtaa ggatgatgtc cgttgttgcg
32761 aatgagaatg ctgagaggtg actcggtagc gttatcaatc acgtcccaa aggtccaaag
32821 gtcccagtta gaagtcaggt gcttcagacc gcagacacgc ccatagcaac cagtgggaaa
32881 agccagcaag agatccgtgg gcacatgcac cgaagctccc gcaggaatc ccaccactc
32941 cgagcgtag accgtgtaag ctacacaccc cgctcccgag gtgggagcag aagctatctc
33001 gctcagccga aagaacttca ggggtggcct catatctct tttactcact tgttagcagc
33061 tccacacaga ccagggttgt gttggcgagg ataggcagca ggggtacgtc cccagtggg
33121 gacacctgga tggggggcag aggattgatg ccaggaagca gcaggtactg ggaaacagag
33181 accagatccc tctctgaaa aatctcgctc agtcggacaa acacagcaaa cccagtgggc
33241 acgtagacta gcacattaaa aaggatcacg ctgggctgtt ctgacgtcag caccagatgt
33301 cgggacgtgc gcagatgaat gcggttctga tgaattaccg gaggcctctc accgcagcc
33361 aacagcagac cgggctgctg atgcggctcc gcagacatat atgagttcaa tgtgtgtctt
33421 ttttctaaac gtctagttag tgtgctcgct ctgctcctgc caatcaaaat ccgggcacca
33481 gggctgggtg ttggaccgca tgaagaagcg aggagaggcg gcctcctgag tgtgaagagt
```

33541 gtcccgatcc tgccacgcga ggtaggcgaa gtacagatag agcacggcga gaacagtcag
33601 caccgcggcc agcagcagtc ggtcgtgggc catgagaggg ggctgatggg aagatggccg
33661 gtgactcctc tcgccccgct ttcggtttct cctcgtctcg ctctcagtgt ctctctctgt
33721 gtcagcgccg agacgagtgt gagcgaacac cgcgagcggg ccggtgatat acccacagcg
33781 gatgtggcca cgcctgcggt cggttaatca gtaccccatc gtccgatcgg aattcccccg
33841 cctccgcggt aacgattaac ccgcccagaa gtcccgggaa ttcccgccag ccggctccgc
33901 cgcgacctgc gactttgacc ccgcccctcg gactttgacc gttcccacgc cacgtcattt
33961 tcccacgcga cgtcacgttc ccacgctacg tcacaccctt ctccaccaat caccgcccgc
34021 cgcccccaac cctctccgcc aatcaccacg ccacaaaagg ggcaataaaa gtgtgcggtg
34081 tattattgat gatg

//

[Disclaimer](#) | [Write to the Help Desk](#)
[NCBI](#) | [NLM](#) | [NIH](#)

Aug 6 2003 13:17:41